COMMERCIAL-SCALE DEMONSTRATION OF THE LIQUID PHASE METHANOL (LPMEOH™) PROCESS

ENVIRONMENTAL MONITORING REPORT NO. 7

For The Period

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Prepared by

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and

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for the Air Products Liquid Phase Conversion Company, L.P.

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ACRONYMS AND DEFINITIONS

Acurex - Acurex Environmental Corporation (now ARCADIS, Geraghty & Miller)

Air Products - Air Products and Chemicals, Inc.

AFDU - Alternative Fuels Development Unit - The "LaPorte PDU"

Balanced Gas - A syngas with a composition of hydrogen (H₂), carbon monoxide (CO), and

carbon dioxide (CO₂) in stoichiometric balance for the production of methanol

BOD - Biochemical Oxygen Demand

Carbon Monoxide Gas - A syngas containing primarily carbon monoxide (CO); also called CO Gas

Crude Grade Methanol - Underflow from rectifier column (29C-20), defined as 80 wt% minimum purity;

requires further distillation in existing Eastman equipment prior to use

DME - dimethyl ether

DOE - United States Department of Energy

DOE-NETL - The DOE's National Energy Technology Laboratory (Project Team)

DOE-HQ - The DOE's Headquarters - Coal Fuels and Industrial Systems (Project Team)

DTP - Demonstration Test Plan - The four-year Operating Plan for Phase 3, Task 2 Operation

DVT - Design Verification Testing
Eastman - Eastman Chemical Company
EIV - Environmental Information Volume
EMP - Environmental Monitoring Plan
EMR - Environmental Monitoring Report
EPRI - Electric Power Research Institute

HAPs - Hazardous Air Pollutants

Hydrogen Gas - A syngas containing an excess of hydrogen (H₂) over the stoichiometric balance for

the production of methanol; also called H₂ Gas

IGCC - Integrated Gasification Combined Cycle, a type of electric power generation plant
IGCC/OTM - An IGCC plant with a "Once-Thru Methanol" plant (the LPMEOH™ Process) added-on

KSCF - Thousand Standard Cubic Feet

KSCFH - Thousand Standard Cubic Feet per Hour

LaPorte PDU - The DOE-owned experimental unit (PDU) located adjacent to Air Products' industrial

gas facility at LaPorte, Texas, where the LPMEOH™ process was successfully piloted

LDAR - Leak Detection and Repair

LPDME - Liquid Phase DME process, for the production of DME as a mixed coproduct with

methanol

LPMEOHTM - Liquid Phase Methanol (the technology to be demonstrated)

Main Plant Purge - Unreacted synthesis gas stream from LPMEOH™ process returned to Eastman's fuel gas

header

mg/m³ - Milligrams per cubic meter

NEPA - National Environmental Policy Act

NPDES - National Pollutant Discharge Elimination System
OSHA - Occupational Safety and Health Administration
Partnership - Air Products Liquid Phase Conversion Company, L.P.

PDU - Process Development Unit
PFD - Process Flow Diagram(s)
ppbv - parts per billion (volume basis)

Project - Production of Methanol/DME Using the LPMEOHTM Process at an

Integrated Coal Gasification Facility

psia - Pounds per Square Inch (Absolute)
psig - Pounds per Square Inch (gauge)
P&ID - Piping and Instrumentation Diagram(s)
RCRA - Resource and Conservation Recovery Act

Refined Grade Methanol - Distilled methanol, defined as 99.8wt% minimum purity; used directly in downstream

Eastman processes

SCFH - Standard Cubic Feet per Hour

Sl/hr-kg - Standard Liter(s) per Hour per Kilogram of Catalyst

ACRONYMS AND DEFINITIONS (cont'd)

Syngas - Abbreviation for Synthesis Gas

Synthesis Gas - A gas containing primarily hydrogen (H₂) and carbon monoxide (CO), or mixtures of

 H_{2} and CO; intended for "synthesis" in a reactor to form methanol and/or other

hydrocarbons (synthesis gas may also contain CO₂, water, and other gases)

- the interconnection(s) between the LPMEOH™ Process Demonstration

Facility and the Eastman Facility

TOC - Total Organic Carbon
TLV - Threshold Limit Value

TPD - Ton(s) per Day

WBS - Work Breakdown Structure

wt - Weight

Tie-in(s)

1. Introduction

The Liquid Phase Methanol (LPMEOHTM) Demonstration Project at Kingsport, Tennessee, is a \$213.7 million effort being conducted under a cooperative agreement between the U.S. Department of Energy (DOE) and Air Products Liquid Phase Conversion Company, L.P. (the Partnership). Air Products and Chemicals, Inc. (Air Products) and Eastman Chemical Company (Eastman) formed the Partnership to execute the Demonstration Project. A demonstration unit producing 80,000 gallons per day (260 tons-per-day (TPD)) of methanol from coal-derived synthesis gas (syngas) was designed, constructed, and began a four-year operational period in April of 1997 at a site located at the Eastman complex in Kingsport. The Partnership will own and operate the facility for the four-year demonstration period.

This project is sponsored under the DOE's Clean Coal Technology Program, and its primary objective is to "demonstrate the production of methanol using the LPMEOHTM Process in conjunction with an integrated coal gasification facility." The project will also demonstrate the suitability of the methanol produced for use as a chemical feedstock or as a low-sulfur dioxide, low-nitrogen oxides alternative fuel in stationary and transportation applications. The project may also demonstrate the production of dimethyl ether (DME) as a mixed coproduct with methanol, if laboratory- and pilot-scale research and market verification studies show promising results. If implemented, the DME would be produced during the last six months of the four-year demonstration period.

The LPMEOH™ process is the product of a cooperative development effort by Air Products and the DOE in a program that started in 1981. It was successfully piloted at a 10-TPD rate in the DOE-owned experimental unit at Air Products' LaPorte, Texas, site. This Demonstration Project is the culmination of that extensive cooperative development effort.

2. Project Description

The demonstration unit, which occupies an area of 0.6 acre, is integrated into the existing 4,000-acre Eastman complex located in Kingsport, Tennessee. The Eastman complex employs approximately 10,000 people. In 1983, Eastman constructed a coal gasification facility utilizing Texaco technology. The syngas generated by this gasification facility is used to produce carbon monoxide and methanol. Both of these products are used to produce methyl acetate and ultimately cellulose acetate and acetic acid. The availability of this highly reliable coal gasification facility was the major factor in selecting this location for the LPMEOHTM Process Demonstration. Three different feed gas streams (hydrogen gas or H₂ Gas, carbon monoxide gas or CO Gas, and Balanced Gas) are available from existing operations to the LPMEOHTM Demonstration Unit, thus providing the range of syngas ratios (hydrogen to carbon monoxide) needed to meet the technical objectives of the Demonstration Project.

For descriptive purposes and for design and construction scheduling, the project has been divided into four major process areas with their associated equipment:

- Reaction Area Syngas preparation and methanol synthesis reaction equipment.
- Purification Area Product separation and purification equipment.
- Catalyst Preparation Area Catalyst and slurry preparation and disposal equipment.
- Storage/Utility Area Methanol product, slurry, and oil storage equipment.

The physical appearance of this facility closely resembles the adjacent Eastman process plants, including process equipment in steel structures.

Reaction Area

The reaction area includes feed gas compressors, catalyst guard beds, the reactor, a steam drum, separators, heat exchangers, and pumps. The equipment is supported by a matrix of structural steel. The most salient feature is the reactor, since with supports, it is approximately 84-feet tall.

• Purification Area

The purification area features two distillation columns with supports; one is approximately 82-feet tall, and the other 97-feet tall. These vessels resemble the columns of the surrounding process areas. In addition to the columns, this area includes the associated reboilers, condensers, air coolers, separators, and pumps.

• Catalyst Preparation Area

The catalyst preparation area consists of a building with a roof and partial walls, in which the catalyst preparation vessels, slurry handling equipment, and spent slurry disposal equipment are housed. In addition, a hot oil utility system is included in the area.

• Storage/Utility Area

The storage/utility area includes two diked lot-tanks for methanol, two tanks for oil storage, a slurry holdup tank, a trailer loading/unloading area, and an underground oil/water separator. A vent stack for safety relief devices is located in this area.

3. Process Description

The LPMEOHTM Demonstration Unit is integrated with Eastman's coal gasification facility. A simplified process flow diagram is included in Appendix A. Syngas is introduced into the slurry reactor, which contains a slurry of liquid mineral oil with suspended solid particles of catalyst. The syngas dissolves through the mineral oil, contacts the catalyst, and reacts to form methanol. The heat of reaction is absorbed by the slurry and is removed from the slurry by steam coils. The methanol vapor leaves the reactor, is condensed to a liquid, sent to the distillation columns for removal of higher alcohols, water, and other impurities, and is then stored in the day tanks for sampling before being sent to Eastman's methanol storage. Most of the unreacted syngas is recycled back to the reactor with the syngas recycle

compressor, improving cycle efficiency. The methanol will be used for downstream feedstocks and in off-site fuel testing to determine its suitability as a transportation fuel and as a fuel for stationary applications in the power industry.

Demonstration Test Plan

Following the start-up of the LPMEOHTM Demonstration Unit, a four-year test plan is being performed by Air Products and Eastman. The goals of the Test Plan are structured to meet the commercialization objectives for the LPMEOHTM Process. Excerpts from Commercialization Objectives from the program Statement of Work are included here to provide the global perspective of the Demonstration Plan:

"Primary Objective

The primary objective of the Project is to demonstrate the commercial scale production of methanol using the LPMEOH™ Process...

The LPMEOH™ Process technology is expected to be commercialized as part of an IGCC electric power generation system. Therefore, the Project incorporates the commercially important aspects of the operation of the LPMEOH™ Process which would enhance IGCC power generation. These important aspects of LPMEOH™ Process integrations are:

- The coproduction of electric power and of high value liquid transportation fuels and/or chemical feedstocks from coal. This coproduction requires that the partial conversion of synthesis gas to storable liquid products be demonstrated.
- Using an energy load following operating concept which allows conversion of off-peak energy, at attendant low value, into peak energy commanding a higher value. The load-following concept makes use of gasifier capacity that is under utilized during low-demand periods by using the LPMEOH™ Process to convert the excess synthesis gas to a storable liquid fuel for use in electric power generation during the peak energy periods. This operating concept requires that on/off and synthesis gas load following capabilities be demonstrated...

During operation, the instrumentation system will allow for the collection of engineering data, analysis and reporting which will be done by on-site technical personnel. Typical reporting will include on-stream factors, material and energy balances, reactor and equipment performance, comparison with laboratory and LaPorte Alternative Fuels Development Unit (AFDU) results, conversion efficiencies and catalyst activity...

Secondary Objective

A secondary objective of the Project is to demonstrate the production of DME (Dimethyl ether) as a mixed coproduct with methanol...

Subject to Design Verification Testing (DVT), the Partnership proposes to enhance the Project by including the demonstration of the slurry reactor's capability to produce DME as a mixed co-product with methanol...

DVT is required to address issues such as catalyst activity and stability and to provide data for engineering design and demonstration decision making...

At the conclusion of the DVT Steps, a joint Partnership/DOE decision will be made regarding continuation of the methanol/DME demonstration. Timing of the final decision must ensure that the necessary design, procurement, construction and commissioning can be completed to allow for (Phase 3, Task 2.2) operation at the end of the primary LPMEOH™ process demonstration period."

The full Demonstration Test Plan (issued September 1996) provides details in the strategy and conditions to be tested during the four-year operating period.

4. Environmental Monitoring Plan (EMP) Description

Air Products Liquid Phase Conversion Company, L.P., has constructed and is operating the 260 ton-per-day Liquid Phase Methanol (LPMEOHTM) Demonstration Unit at the Eastman Chemical facility in Kingsport, Tennessee. As specified in the Cooperative Agreement, the Partnership developed an Environmental Monitoring Plan (EMP) (issued August 1996) which describes in detail the environmental monitoring activities to be performed during the operation of the LPMEOHTM Demonstration Unit. The purpose of the EMP is to: 1) document the extent of compliance monitoring activities, i.e., those activities required to meet permit requirements, 2) confirm the specific environmental impacts predicted in the National Environmental Policy Act documentation, and 3) establish an information base for the assessment of the environmental performance of the technology for future commercialization.

The EMP describes three categories of environmental monitoring which are performed as a result of the operation of the LPMEOHTM Demonstration Unit. Details of streams internal to the demonstration unit are available in the Technical Progress Reports for the Project.

4.1 Eastman Reporting of Publicly Available Technical Data

As defined in the Statement of Work for the Demonstration Project, Eastman will provide data on three areas of operation of the Chemicals-from-Coal complex (refer to Table 4.1 for a breakdown of the streams to be monitored):

- 1) Gasifier material balance data
- 2) 10C-30 Guard Bed operating data
- 3) Wastewater and alcohols to wastewater treatment system

This technical information provides information from Eastman's existing facilities to provide an overall assessment of the LPMEOH™ technology. A Special Topical Report will provide this information. Updates, if any, are included in Quarterly EMRs if a significant change occurs.

4.2 Compliance Monitoring

Four areas of compliance monitoring have been identified to satisfy the permit requirements for the demonstration unit (Table 4.2):

- 1) Combined Vapor Flow from Demonstration Unit to Boiler
- 2) Fugitive Emissions
- 3) Particulate Emissions
- 4) Wastewater Treatment System Outlet Stream

Each of these sources is monitored at a frequency mandated by the relevant permit or industrial hygiene practice. The EMRs will include the results of any compliance monitoring generated during the reporting period.

4.3 Supplemental Monitoring

Three areas of supplemental monitoring have been identified in the EMP (Table 4.3):

Summary of Major Material Balance Streams for Demonstration Unit

The major feed streams (CO Gas, H₂ Gas, Balanced Gas) and product flows (Refined Grade Methanol, Crude Grade Methanol, Main Plant Purge) are provided as a summary table of the cumulative stream flows for the reporting period.

Solid/Liquid Discharges

Four other streams can be generated from the demonstration unit:

- 1) Compressor and Pump Lubricants
- 2) Oil Recovered in Oil/Water Separator
- 3) Spent Catalyst
- 4) 29C-40 Guard Bed Adsorbent

Any quantities generated during the reporting period are included in the EMR.

Noise

The EMP identified that a noise survey around the 29K-01 Recycle Compressor was planned during the initial start-up of the demonstration unit.

TABLE 4.1

LPMEOH™ DEMONSTRATION UNIT

PUBLICLY AVAILABLE TECHNICAL DATA FROM EASTMAN CHEMICALS-FROM-COAL COMPLEX

Environmental Media

General Parameters

Coal Pressure, Temperature, Coal Analysis

Oxygen to Gasifier Pressure, Temperature, %O₂

Water to Gasifier Pressure, Temperature

Waste Water from Gasifier Pressure, Temperature, Total Organic

Carbon

Clean Synthesis Gas from Gasifier Pressure, Temperature, Flow

Sulfur Recovered from Gasifier Pressure, Temperature, Flow, %S

Carbon Dioxide from Gasifier Pressure, Temperature, Flow, %CO₂

Slag from Gasifier Pressure, Temperature, Flow

Balanced Gas from 10C-30 Pressure, Temperature, Flow,

Guard Bed Composition

Wastewater and Alcohols to Flow, Composition, BOD

Wastewater Treatment System

TABLE 4.2

LPMEOH™ DEMONSTRATION UNIT

COMPLIANCE MONITORING

General Parameters

Combined Vapor Flow from Demonstration

Unit to Boiler

Composition

Fugitive Emissions Leak Detection and Repair (LDAR)

Report, Volatile Organic Carbon (VOC), Background Ambient CO Concentration

Particulate Emissions Threshold Limit Value (TLV)

Wastewater Treatment System Outlet

Stream

Flow, Total Organic Carbon, pH

TABLE 4.3

LPMEOH™ DEMONSTRATION UNIT

SUPPLEMENTAL MONITORING

Environmental Media	General Parameters
CO Gas to LPMEOH™ Demonstration Unit	Cumulative Flow for Quarter
H ₂ Gas to LPMEOH TM Demonstration Unit	Cumulative Flow for Quarter
Balanced Gas to LPMEOH™ Demonstration Unit	Cumulative Flow for Quarter
Main Vapor Purge from LPMEOH TM Demonstration Unit	Cumulative Flow for Quarter
Refined Grade Methanol	Cumulative Flow for Quarter
Crude Grade Methanol	Cumulative Flow for Quarter
Compressor and Pump Lubricants	Weight or Volume
Oil Recovered in Oil/Water Separator	Weight or Volume
Spent Catalyst	Weight, Weight% Solids
29C-40 Guard Bed Adsorbent	Weight or Volume
Noise Survey for 29K-01 Recycle Compressor	dBa

5. Project Summary

Synthesis gas was first introduced to the LPMEOHTM Demonstration Unit on 02 April 1997. The nameplate capacity of 80,000 gallons of methanol per day (260 tons-per-day) was achieved on 06 April 1997. During the reporting period, availability for the LPMEOHTM Demonstration Unit was 100%, and the plant completed the longest continuous campaign to date (94 days) on 27 October 1998. Table 5.1 summarizes the onstream time and outages of the LPMEOHTM Demonstration Unit during the reporting period.

6. Updates on Eastman "Chemicals-from Coal" Facility Publicly Available Technical Data

6.1 Gasifier Facility

As defined in Section 7.1 of the Environmental Monitoring Plan, publicly available technical data from the Eastman "Chemicals-from-Coal" facility, which includes data on the streams associated with the Gasifier facility, will be issued in a Special Topical Report. If a significant change in gasifier facility operation (e.g., feedstock change, equipment modifications or additions, etc.) occurs, then an update will be provided in a future EMR.

6.2 10C-30 Catalyst Guard Bed

As defined in Section 7.1 of the Environmental Monitoring Plan, publicly available technical data on the trace impurities entering and leaving the Catalyst Guard Bed will be issued in a Special Topical Report.

During the reporting period, there was no change of adsorbent or process change related to the operation of the 10C-30 Catalyst Guard Bed. If a significant change occurs, then an update will be provided in a future EMR.

6.3 Wastewater and Alcohols to Wastewater Treatment System

The report on publicly available technical data from the Eastman "Chemicals-from-Coal" facility, which includes data on the streams associated with the wastewater and alcohols to the Wastewater Treatment System, will be issued in a Special Topical Report. This will consist of a comparison of the flow, composition, and BOD load of this stream before and after the addition of the LPMEOHTM Demonstration Unit.

Table 5.1

Summary of LPMEOHTM Demonstration Plant Onstream Time and Outages - October/December 1998

Reason for Shutdown	Syngas Outage	Syngas Outage	Power / Syngas Outage	Syngas Outage	Syngas Outage	Syngas Outage	End of Reporting Period
Shutdown Hours	15.4	1.0	163.8	9.0	1.6	190.7	
Operating Hours	637.5	104.3	46.1	335.6	5.4	514.9	181.6
Operation End	10/27/98 14:30	11/1/98 14:10	11/3/98 13:15	11/24/98 08:40	11/24/98 23:05	12/16/98 11:35	12/31/98 23:59
Operation Start	10/1/98 00:01	10/28/98 05:55	11/1/98 15:10	11/10/98 09:05	11/24/98 17:40	11/25/98 00:40	12/24/98 10:20

1825.4 1825.4 100.00

Total Operating Hours Syngas Available Hours Plant Availability, %

7. Compliance Monitoring

7.1 Combined Vapor Flow from Demonstration Unit to Boiler

A sample of the header gas from the LPMEOHTM Demonstration Unit must be analyzed as part of the Boiler and Industrial Furnace regulations within RCRA. Sampling is currently required every three years. During the development of the EMP, it was anticipated that the new tie-in from the LPMEOHTM Demonstration Unit to the Eastman fuel header would require testing as a new source. After the EMP was published, it was determined that the new tie-in was not considered a significant change and did not require testing. Therefore, with the current sampling schedule, the next sample will be taken in February of 2000.

No activity occurred during the reporting period.

7.2 Fugitive Emissions

7.2.1 Leak Detection and Repair (LDAR)

No activity occurred during the reporting period. The next report on Leak Detection and Repair at the LPMEOHTM Demonstration Unit is scheduled for the first quarter of calendar year 1999.

7.2.2 Ambient Carbon Monoxide Background Concentration

This one-time study was completed in June of 1998, and documents the concentration of CO that is encountered by a LPMEOHTM operations person during the course of a normal day of plant operations. The report on this study is included in Environmental Monitoring Report No. 5. Both the time-weighted average and the peak values for CO were below the established limits by the Tennessee Operational Health and Safety Administration.

7.3 Particulate Emissions

This one-time study was completed in July of 1997, and documents the exposure level to particulate emissions that is encountered by a LPMEOH™ operations person during the catalyst charging process. The report on this study is included in Environmental Monitoring Report No. 1. Some engineering modifications to the catalyst loading system are planned to reduce the dust concentration and potential personnel exposure.

7.4 Wastewater Treatment System Outlet Stream

The reports on the outfall from the Wastewater Treatment System (Discharge Number 002) for the reporting period is attached in Appendix B. There were no permit excursions.

A process stream within the existing Eastman facility which is impacted by the operation of the LPMEOHTM Demonstration Unit contains the byproduct alcohols and water which are generated in parallel with the production of methanol. This stream is sent to the Eastman

Wastewater Treatment System. As noted in Section 6.3, a comparison of the flow, composition, and BOD load of this stream before and after the addition of the LPMEOH™ Demonstration Unit will be included in a Special Topical Report on publicly available technical data from the Eastman "Chemicals-from-Coal" facility.

8. Supplemental Monitoring

8.1 Total Synthesis Gas Use and Methanol Production

Table 8.1 contains the summary of the major process flows to and from the LPMEOH™ Demonstration Unit for the reporting period. Approximately 4,960,000 gallons (16,370 tons) of methanol (Refined and Crude Grades) were produced during the reporting period.

8.2 Oil/Water Separator

A total of 12,000 pounds of oil was removed from the Oil/Water Separator during the reporting period. In addition, a total of 80,684 pounds of oil was recovered from other equipment within the existing Eastman complex. This material has been incinerated for energy recovery.

8.3 Compressor and Pump Lubricants

No material was generated during the reporting period.

8.4 Spent Catalyst Slurry

No spent catalyst slurry was generated during the reporting period.

8.5 29C-40 Catalyst Guard Bed Spent Adsorbent

No material was generated during the reporting period.

8.6 Noise

The results of noise dosimetry measurements of the entire LPMEOHTM Demonstration Unit were reported in Environmental Monitoring Report No. 1. The results of an area noise survey at each platform of the LPMEOHTM Demonstration Unit and around the 29K-01 Recycle Compressor were reported in Environmental Monitoring Report No. 2. No additional surveys were performed during the reporting period.

Table 8-1

Synthesis Gas Use and Methanol Production - October/December 1998

LPMEOHTM Demonstration Unit

	October 1998	November 1998	December 1998	Total
Consumption, KSCF	<u> </u>			
Balanced Gas	540,521.9	363,912.1	348,803.0	1,253,237.0
CO Gas	80.4	8,072.8	496.2	8,649.4
H ₂ Gas	0.0	0.0	0.0	0.0
Production, Tons				
Crude Methanol	2,534.7	1,699.8	1,620.8	5,855.3
Refined Methanol	4,400.8	3,156.6	2,963.9	10,521.3
Total Purge Gas, KSCF	65,286.7	49,921.4	56,405.4	171,613.5

9. Compliance

9.1 Compliance with Permit Limits

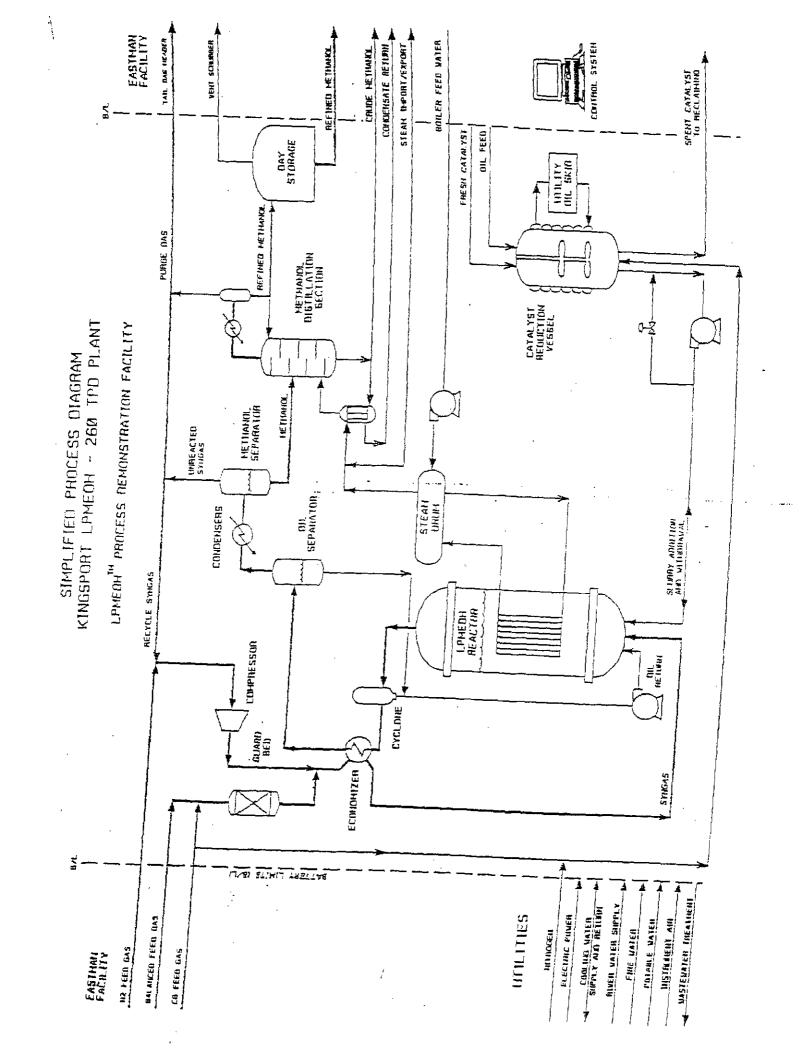
There were no excursions outside permit limits associated with the operation of the $LPMEOH^{TM}$ Demonstration Unit.

10. Problems and Recommendations

There have been no significant problems arising in the environmental area.

APPENDICES

APPENDIX A - SIMPLIFIED PROCESS FLOW DIAGRAM



APPENDIX B - NPDES REPORTS FOR WASTEWATER TREATMENT SYSTEM OUTLET STREAM

PAGE 2 OF 6

AREA CODE NUMBER YEAR MO DAY Forms by WindowChem(707)884-0845,ph11090.x5.01,4/108

OFFICER OR AUTHORIZED AGENT

PERMITTEE NAME/ADDRESS:

TN EASTMAN DIVISION

DIVISION OF EASTMAN CHEMICAL CO. P.O. BOX 1993

Facility: TN EASTMAN - KINGSPORT KINGSPORT, TN 37662-5393

Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MAJOR DISCHARGE MONITORING REPORT (DMR)

DISCHARGE NUMBER 002 G

PERMIT NUMBER TN0002640

(SUBR 06) F - FINAL

OMB No. 2040-0004 FORM APPROVED

INDUSTRIAL PROCESS WASTEWATER

** NO DISCHARGE EFFLUENT

98 - 10 - 31

9

98 - 10 - 01

FROM

MONITORING PERIOD

NOTE: Read instructions before completing this form.

	\ 	(3 Card Only)	Quantity or	Loading	(4 Card Only)	Quantity or	Concentration NO.			Frequency of	Sample
PARAMETER	<u> </u>	(46-53)	(54-61)		(38-45)	(46-53)	(54-61)		Ä	Analysis	Туре
(32-37)		AVERAGE	MAXIMUM	LIND	MINIMOM	AVERAGE	MAXIMUM	TINO	(62-63)	(64-68)	(02-69)
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SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	r 3,729	8,673	(56)	*****	******	****		٥	31/31	Composite
00530 1 0 0 EFFLUENT GROSS VALUE	PERMIT.	11111 MON AVG	ONINY WAY	LBS/DAY			**************************************	I		DAILY	COMPOSITE
NITROGEN, AMMONIA TOTAL (AS N)	SAMPLE MEASUREMENT	ر > 50	249	(26)	******	¢:0 >	1	(19)	0	31/31	Composite
00610 2 0 0 EFFLUENT NET VALUE	PERMIT: RECUIREMENT	SOOO WON AVG	12000 DXIII WAX	LBS/DAY		30.5 MON AVG	61 DAILY MAX	MG/L		DAILY	COMPOSITE
CYANIDE, TOTAL (AS CN)	SAMPLE MEASUREMENT	ר פטר	TOB	(56)	******	naa	BOL	(19)	0	1/7	Grab
00720 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	14.51 MON AVG	DXIEV WAX	LBS/DAY	******	0.058 MON AVG	0.419 DAILY MAX	MG/L		WÈEKLY	GRAB
CHROMIUM, TOTAL (AS CR)	SAMPLE MEASUREMENT	T 4.02	5.35	(26)	*******	0.020	0.025	(19)	0	1/1	Composite
01034 2 0 0 EFFLUENT NET VALUE	PERMIT THE RECOGNITION OF	TIZET	100 PM	LBS/DAY		0.050 WOMPANG	0.100 DAILY WAX.	MG/L		WEEKLY	COMPOSITE
COPPER, TOTAL (AS CU)	SAMPLE MEASUREMENT	r < 1.25	2.36	(26)	*******	900'0 >	0.010	(19)	0	1/7	Composite
01042 2 0 0 EFFLUENT NET VALUE	REQUÍREMEN	12:51 MON AVG	DAIN NOX	LBS/DAY		O 050 MONTAVE	0.100 DAILY MAX	MG/L		WEEKLY	COMPOSITE
LEAD, TOTAL (AS PB)	SAMPLE MEASUREMENT	T 804	ВОГ	(26)	*******	ТОВ	BDL	(19)	0	177	Composite
01051 2 0 0 EFFLUENT NET VALUE	REQUIREMENT	ASIOS I A MONAVO	ONINE	LBS/DAY		MONAVE	0.690 DAILY NAX	MG/L		WEEKLY	COMPOSITE
NAME / TITLE PRINCIPAL EXECUTIVE OFFICER		CERTEFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL		ACIOAENTS WERE P	ATTACHOLENIS WESE PREFABED UNDER MY	M	,		Ŧ	ELEPHONE	DATE
H. H. Holliman, President		DRELTINA OR SPERVISION N. ACCORDANCE WITH A STRING DESCRIED TO ASSURE THAT QUALTIPED RESONANCE INFORMATION TREADMENT INFORMATION AND THE AND EVALUATE THE DEPONANCE IN REPORTED, MAED OWN PROQUENT OF THE PRESENCE OF PRESENCE WHO ANALOGE THE STRING OF THE PROPERTY INFORMATION THE DEPONANCE INFORMATION THE DEPONANCE IN ADMINISTRATION THE DEPONANCE INFORMATION THE	E WITH A SYSTEM DEBONED UNATION RUBNITTED, RAKED ON IONE DIDECTLY RESPONSIBLE P	no assume that qu my paquiry of the or gathering the	UALIFIED PERSONNES PPERSON OR PERSONS E DIFORMATION, THE	1 July	MANN	N			
Tennessee Eastman Division		преобвалатов вірыптео в, то тне вейт об ыт кномийске акої вейтет, тися, аксивате, ако сламиете и ам Хамав тися твева на возперсамі трактупев пов веренетрно бале інномиатом інсционо тне повзевиту Не втов акти преверамість на велення так аттив.	F MY KWOWLEDOE AND BELLET. TES FOR SUBARTITING FALLE DY * ATTOMS	TEUE, ACCURATE, A PORMATION, INCLUD		SIGNATURE OFFRINCIPAL EXECUTIVE	NCIPAL EXECUTE		(42	(423) 229-2000	98 - 11 - 11
TVPEN OR PRINTER		D INTRIBUTION TVB ACTOR	AAIkma			OFFICER OR ALL	OFFICER OR AUTHORIZED AGENT	<u> </u>	7300	AREA CODE NIMBER	YEAR MO DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS

TYPED OR PRINTED

(Reference all attachments here)

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(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.

PAGE 3 OF 6

AREA CODE NUMBER YEAR MO DAY Forms by WindowChem(707)864-0845;phr11090;v5 01;47/789

98 - 11 - 11

(423) 229-2000

SIGNATURE OPPRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

DATE

TELEPHONE

ę.

PERMITTEE NAME/ADDRESS:

TN EASTMAN DIVISION

DIVISION OF EASTMAN CHEMICAL CO. P.O. BOX 1993

KINGSPORT, TN 37662-5393

Location: SULLIVAN COUNTY TN 37662-5393 Facility: TN EASTMAN - KINGSPORT

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER TN0002640

(SUBR 06) F - FINAL DISCHARGE NUMBER

OMB No. 2040-0004

FORM APPROVED

MAJOR

NDUSTRIAL PROCESS WASTEWATER EFFLUENT

NOTE: Read instructions before completing this form ** NO DISCHARGE | |

98 - 10 - 31

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98 - 10 - 01

FROM

MONITORING PERIOD

COMPOSITE COMPOSITE RECORDER COMPOSITE Composite Composite Composite Sample (02-69)Type ş Frequency of CONTINUOUS Continuous Analysis MEEKLY WEEKLY (64-68)31/31 2 4 (62-63)S X 0 0 0 0 FINS ¥C/L МG/L : *** (19) (3) Concentration DAILY MAX DAILY: MAX MAXIMUM 0.082 1.270 (54-61)0.051 3.980 resease ******* 1 Quantity or とします MON.AVG MON AVG AVERAGE -(46-53)0.038 0,635 ******* ****** 1.690 0.074 (4 Card Only) MINIMOM ****** (38-45)**** ******* ******* ****** ****** ******* - 13° 0 J. LBS/DAY LBS/DAY LBS/DAY Loading MGD E (26) 92 3 92 00 150000 00 150000 Quantity or 995'80 DAILE TRX DXIII AAX REPORT DAILY MAX MAXIMUM 2,070 12.43 17.12 29.11 (54-61)(3 Card Only) 422.84 MON AVG MON AVG MON AVG MON AVG AVERAGE REPORT 158,00 23.49 1,223 15.07 46-53) 8 8 PERMIT REQUIREMENT REGUIREMENT PERMIT RECUIREMENT REQUIREMENT MEASUREMENT MEASUREMENT REQUIREMENT MEASUREMENT REQUIREMENT MEASUREMENT MEASUREMENT MEASUREMENT PERMIT SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE PERMIT PERMIT **EFFLUENT GROSS VALUE** THRU TREATMENT PLANT BOD, CARBONACEOUS NICKEL, TOTAL (AS NI) **EFFLUENT NET VALUE EFFLUENT NET VALUE EFFLUENT NET VALUE** FLOW, IN CONDUIT OR PARAMETER ZINC, TOTAL (AS ZN) 80082 2 W 0

05 DAY, 20C

PRECTION OR SPERVISON IN ACCORDANCE WITH A RETEXT BERENDED TO ASSISTE THAT QUALITIES TREASED UNDER INFORMATIVE OATHER AND EVALUATE THE INFORMATIVE MEADING ON ASSISTE THAT QUALITIES PERSONNELS WHO MANAGE THE STEAL OF THOSE TREASEN OF RESENT OF THE RESENT OF PROPERTIES FOR GATHERING THE RESENT OF COMMENT AND EXPLANATION OF ANY VIOLATIONS TYPED OR PRINTED

(Reference all attachments here)

cratey under penality of law that this document and all attachments were prearbed under my Rescribt or suffixusion in accordance with a system designed to assure that qualified personnel

REQUIRENT .

NAME / TITLE PRINCIPAL EXECUTIVE OFFICER

Tennessee Eastman Division

H. H. Holliman, President

MEASUREMENT

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant

instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance EPA FORM 3320-1 (REV.9-88) Previous editions may be used.

(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

TN EASTMAN DIVISION

DIVISION OF EASTMAN CHEMICAL CO. P.O. BOX 1993

Facility: TN EASTMAN - KINGSPORT KINGSPORT, TN 37662-5393

Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

002 G DISCHARGE MONITORING REPORT (DMR)

(SUBR 06)

MAJOR

OMB No. 2040-0004 FORM APPROVED

DISCHARGE NUMBER | F - FINAL

INDUSTRIAL PROCESS WASTEWATER EFFLUENT

MONITORING PERIOD

PERMIT NUMBER TN0002640

98 - 11 - 01

FROM

** NO DISCHARGE | ... 98 - 11 - 30

NOTE: Read instructions before completing this form. Quantity or Concentration (4 Card Only) Quantity or Loading (3 Card Only)

EPA FORM 3320-1 (REV.9-88) Previous editions may be used.

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(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

IN EASTMAN DIVISION

KINGSPORT, TN 37662-5393 P.O. BOX 1993

DIVISION OF EASTMAN CHEMICAL CO. Facility: TN EASTMAN - KINGSPORT

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MAJOR

DISCHARGE MONITORING REPORT (DMR) TN0002640

DISCHARGE NUMBER

PERMIT NUMBER

(SUBR 06) F - FINAL

OMB No. 2040-0004 FORM APPROVED

INDUSTRIAL PROCESS WASTEWATER EFFLUENT NOTE: Read instructions before completing this form

** NO DISCHARGE

98 - 11 - 30

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98 - 11 - 01

FROM

Location: SULLIVAN COUNTY TN 37662-5393

MONITORING PERIOD

COMPOSITE COMPOSITE COMPOSITE RECORDER Composite Composite Composite Sample Type (02-69)٤ Frequency of SUCH MISSONS Continuous Analysis (64-68)A 30/30 4 1 Š 73 (62-63)0 0 0 0 ÷ FNS MG/L MG/L į į (1 6 Concentration TANK BUT MAXIMUM (24-61) 0.048 Services. 0.041 Athense ******* ****** Quantity or AVERAGE N TO TO (46.53)-0.043 ******* ******* 0.031 (4 Card Only) MINIMOM 1 ******* (38-45)***** **** LBS/DAY LBS/DAY DAILS LESYDAY Loading QQ WCD LIND 8 (56) (26) (56) Quantity or MAXIMUM (54-61) 28.20 1,630 10.61 8.50 (3 Card Only) SW COLL AVERAGE AT CHERTS 25.07 (46-53)9.20 6.42 できる 829 SWE TELLINOSEN TIME (But I TOWN MEASUREMENT MEASUREMENT MEASUREMENT A TENENT MEASUREMENT MEASUREMENT MEASUREMENT の通り当時であ VEICE HILDER (EVERY DE) SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE **THRU TREATMENT PLANT EFFLUENT GROSS VALUE** BOD, CARBONACEOUS VICKEL, TOTAL (AS NI) **EFFLUENT NET VALUE EFFLUENT NET VALUE EFFLUENT NET VALUE** FLOW, IN CONDUIT OR PARAMETER ZINC, TOTAL (AS ZN) (32-37)80082 2 W 0 50050 1 0 0 01092 2 0 0 01067 2 0 0 05 DAY, 20C

COMMENT AND EXPLANATION OF ANY VIOLATIONS TYPED OR PRINTED

EPA FORM 3320-1 (REV.9-88) Previous editions may be used.

(Reference all attachments here)

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NAME / TITLE PRINCIPAL EXECUTIVE OFFICER

ennessee Eastman Division

H. H. Holliman, President

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MEASUREMENT

SAMPLE

SIGNATURE OF PRINCIPAL EXPCUTIVE **OFFICER OR AUTHORIZED AGENT**

AREA CODE NUMBER YEAR MO DAY Forms by WindowChemi(707)864-0845;ph11080;v5.01;41/99

98 - 12 - 10

(423) 229-2000

DATE

TELEPHONE

in addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC dipe plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recumence of the instance.

REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

TN EASTMAN DIVISION

DIVISION OF EASTMAN CHEMICAL CO.

P.O. BOX 1993

Facility: TN EASTMAN - KINGSPORT KINGSPORT, TN 37662-5393

Location: SULLIVAN COUNTY TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR) PERMIT NUMBER TN0002640

DISCHARGE NUMBER | F - FINAL 002 G

(SUBR 06) MAJOR

OMB No. 2040-0004 FORM APPROVED

INDUSTRIAL PROCESS WASTEWATER

EFFLUENT

MONITORING PERIOD

98 - 12 - 31

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98 - 12 - 01

FROM

" NO DISCHARGE [__] "

NOTE: Read instructions before completing this form. Quantity or (4 Card Only) Quantity or Loading / 13 Card Only)

Sample Type	(02-69)	N/A	RECORDER	Composite	COMPOSITE	Composite	COMPOSITE	Grab	GRAB	Composite	COMPOSITE	Composite	COMPOSITE	Composite	COMPOSITE	DATE	99 - 01 - 13	YEAR MO DAY	L-0645;p/n11090;v5-01;4/1/96
Frequency of Analysis	(64-68)	Continuous	CONTINUOUS	19/31	WEEKLY	10/31	WEEKLY	1/31	ONCEMONTH	1/31	ОЙСЕЛМОНТН	1/31	ONCEMONTH	1/31	ONCE/MONTH	TELEPHONE	(423) 229-2000	AREA CODE NUMBER YEAR MO DAY	orms by WindowChem(707)86
S 🛱	(62-63)	0		٥		0	·	0		0		0		0	:	Ŧ	(42	ARE	_
	LIND	(12)	S		•	(19)	MG/L	(19)	MG/L	(19)	MG/L	(19)	MG/L	(49)	MG/L		T W		
Concentration (54-61)	MAXIMUM	8.0	9.0 MAXIMUM	******		1.9	61.0 DAILY MAX	< 0.010	0.343 DAILY MAX	0.018	0.100 DAILY MAX	0.008	0.100 DAILY MAX	< 0.040	0.690 DAILŸ MAX	٠	WCOPAL EXECUTIV	HORIZED AGENT	
Quantity or (46-53)	AVERAGE	*******		•		< 0.3	30.5 MON AVG	< 0.010	0.048 MON AVG	0.018	0.050 MON AVG	0.008	0.050 MON AVG	< 0.040	6172 MON XVG	14%	W LANGELLENTY SIGNATURE OF PRINCIPAL EXECUTIVE	OFFICER OR AUTHORIZED AGENT	
(4 Card Only) (38-45)	MINIMOM	6.8	6.0 WINIMUM	*********		*******	hithman	*******	***********	*****	********	40404444		*******		SPARED UNDER MY			s here)
Loading	UNIT		i	(26)	LBS/DAY	(26)	LBS/DAY	(26)	LBS/DAY	(26)	LBS/DAY	(26)	(\$ LBS/DAY	(26)	LBS/DAY	MARRIES WERE PI	ABBURE THAT OF THE Y BATHERING THE KUE, ACCURATE, A BAMATION, INCLUDIN		affachment
Quantity or (54-61)	MAXIMUM	********					DAILYNAX	< 2.11	DANS	3.87	OXILY WAX	1.67	DAILYBAX	< 8.75		CRETTEY UNDER PRIVALTY OF LAW THAT THE DOCUMENT AND ALL ATTACHMENTS WERE MERARED UNDER MY	INTERCENCY OR REFERENCIA MACCORDANCE WHICH A STEED DELANGED TO ARREST HAND GALALITON PERSONNELLY CATEGORY. THE PROMALINE RESPONSE MACCOLLAND WE WEND HAND AND THE STEED OF ONE FEBOORY OR FEBOORY OR PERSONNEL THE REPURSON OF THE STEED OF ONE FEBOORY OR PERSONNEL THE AND THE RESEARCH DESCRIPTION FOR STEED OF ONE PERSONNELLY IN AN PROMALINE WAS REMAINTED IN TO THE SERFE OF THE ROPORTION OF STEED OF THE STEED	LATIONS	(Reference all attachments here)
(3 Card Only) (46-53)	AVERAGE	*********		1,675		> 61	WBB44	< 2.11	MONTAVG	3.87	MONAVG	1.67	MONANG	< 8.75	MONWO	THE PENALTY OF LAW THAT THE	INTERCENCY OR REPREVAINT HE ACCORDANCE WITH A STREET DES PROFESSEL OUTRES AND PULLINET THE PROPERSON DESCRIPTION IN PROVINCIAL THE STREET, OR THOSE PERSON DESCRIPTION IN PROFESSEL THE STREET OF THE SET OF THE STREET OF THE STREET OF THE STREET THE STREE	OF FINE AND MATRIMONAEDYT FOR KNOWING YNOLATHONS	
\nearrow		SAMPLE MEASUREMENT	RECKIREMENT.	SAMPLE MEASUREMENT	RECUIESEN FA	SAMPLE MEASUREMENT	RECOURSEMENT	SAMPLE MEASUREMENT	RECONTENT	SAMPLE MEASUREMENT	RECONTENT	SAMPLE MEASUREMENT	RECOUREMENT	SAMPLE MEASUREMENT			DESCTION OR PROFESLY GAT WHO MANAGE PATORACTION TAMARE	OF FINE AND IN	NY VIOLATIONS
PARAMETER	(32-37)	Hd	00400 1 0 0 EFFLUENT GROSS VALUE	SOLIDS, TOTAL SUSPENDED	00530 1 0 0 EFFLUENT GROSS VALUE	NITROGEN, AMMONIA TOTAL (AS N)	00610 2 0 0 EFFLUENT NET VALUE	CYANIDE, TOTAL (AS CN)	00720 2 0 0 EFFLUENT NET VALUE	CHROMIUM, TOTAL (AS CR)	01034 2 0 0 EFFLUENT NET VALUE	COPPER, TOTAL (AS CU)	01042 2 0 0 EFFLUENT NET VALUE	LEAD, TOTAL (AS PB)	01051 2 0 0 EFFLUENT NET VALUE	NAME / TITLE PRINCIPAL EXECUTIVE OFFICER	H. H. Holliman, President Tennessee Eastman Division	TYPED OR PRINTED	COMMENT AND EXPLANATION OF ANY VIOLATIONS

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TN EASTMAN DIVISION

DIVISION OF EASTMAN CHEMICAL CO. P.O. BOX 1993

Location: SULLIVAN COUNTY TN 37662-5393 Facility: TN EASTMAN - KINGSPORT KINGSPORT, TN 37662-5393

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MAJOR

DISCHARGE MONITORING REPORT (DMR) TN0002640

(SUBR 06) DISCHARGE NUMBER F - FINAL 002 G

PERMIT NUMBER

OMB No. 2040-0004 FORM APPROVED

INDUSTRIAL PROCESS WASTEWATER

NOTE: Read instructions before completing this form.

** NO DISCHARGE ...

98 - 12 - 31

98 - 12 - 01

FROM

EFFLUENT

MONITORING PERIOD բ

PARAMETER		(3 Card Only) (46-53)	Quantity or (54-61)	Loading	(4 Card Only) (38-45)	Quantity or (46-53)	Concentration (54-61)		중 및	Frequency of Analysis	Sample Type
(32-37)	/ \	AVERAGE	MAXIMUM	TINO	MINIMUM	AVERAGE	MAXIMUM	TINO	(62-63)	(64-68)	(02-69)
NICKEL, TOTAL (AS NI)	SAMPLE MEASUREMENT	4.73	4.73	(32)	******	0.022	0.022	(19)	0	1/31	Composite
01067 2 0 0 EFFLUENT NET VALUE	RECOUNTERENT	MON AVG	869.66 Daily Nax	LBS/DAY	distant	1,690 MON AVG	3.980 DAILY MAX	MG/L	,	ONCEMONTH	COMPOSITE
ZINC, TOTAL (AS ZN)	SAMPLE MEASUREMENT	14.89	14.89	(56)	******	890:0	0.068	(19)	0	1/31	Composite
01092 2 0 0 EFFLUENT NET VALUE	REGUNERIENT	13677 MON AVG	277.54 DAILY MAX	LBS/DAY		0.636 MON AVG	1.270 DAILY MAX	MG/L		ONCEMONTH	COMPOSITE
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	24.2	27.8	(60)	******	*****	*******		0	Continuous	N/A
50050 1 0 0 EFFLUENT GROSS VALUE	REGIONS	MONTA VG	REPORT DAILY WAY	MGD	***************************************	***************************************	*********	****	*	CONTINUOUS	RECORDER
BOD, CARBONACEOUS 05 DAY, 20C	SAMPLE MEASUREMENT	702	1,218	(56)	******	******	****		0	19/31	Composite
80082 2 W 0 EFFLUENT GROSS VALUE	RECONSTRENT	6000 MON AVG	13000 DAILY MAX	LBS/DAY	******	*******	********	****		WEEKLY	COMPOSITE
	SAMPLE MEASUREMENT										
	Received A				, , , 3 Å,					4	
	SAMPLE MEASUREMENT										
	RECONSTRAIN										
	SAMPLE MEASUREMENT										
	RECOUREMENT		\$								
NAME / TITLE PRINCIPAL EXECUTIVE OFFICER		CERTOY UNDER PENALTY OF LAW THAT TI	OF LAW THAT THES DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY	ACHORENTS WERE PR	EPARED UNDER MY	a year	•		F	TELEPHONE	DATE
H. H. Holliman, President	ORBECTION OF TROPERLY OF TROPE	ОВЕСТОМ ОК ВЛЕКИТЕМ НА АССЕВЬАКСЕ WITH A SYSTEM DESCRIPED TO ASTRE THAT CHARITED PERSONNED TO RECEIVE CATHER AND EVALUATE THE REPOBLACIONES SERVETTED BARRED OM HAT PROCURAT OF THE PERSON OR PERSONS WED ARANGE THE SYSTEM, OR THOSE TREADES DESCRIVE MERROWSHELE FOR CATHERDROW THE REPOBLATION. THE	WITH A SYRTEM DERICHED TATION SUBMITTED BASED ON MR. DIRECTLY NESTONEMER 9	o airure that qu, My dachen of the I Or gathering the	TEREON OF PERSONS BREGGAATTON, THE	1/2/1/201	Unn				
Tennessee Eastman Division	REPORTED AWARE THA	INFORMATION SUBMITTED BY TO THE MEST OF MY INCONTEDGE AND MELTS; TRUE, ACCURATE, AND COMPLETE, I AM THE STRAIT THE ALE SECREPCIAN TRAINITED FOR SUBMITTING FALSE DEPORTATION. DICLIDING THE POSSIBILITY THE AMERICAN THE SECREPCIAN OF STRAINS.	MY KNOWLEDGE AND BELIEF. IED FOR BURBATTING FALSE DA 8 ATVING	TRUE ACCURATE, AL		SIGNATURE OFFRINCIPAL EXECUTIVE	NCIPAL EXECUT	Ä	(42	(423) 229-2000	99 - 01 - 13
TYPED OR PRINTED						OFFICER OR AU	OFFICER OR AUTHORIZED AGENT		ARE	AREA CODE NUMBER YEAR MO DAY	YEAR MO DAY
COMMENT AND EXPLANATION OF ANY VIOLATIONS	ANY VIOLATIONS		(Reference	(Reference all attachments here)	s here)					FORTIS By VVINCOW-HOTH, CVI Joo	4-0845;pm11090;va u.e.

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

EPA FORM 3320-1 (REV.9-88) Previous editions may be used.

PERMITTEE NAME/ADDRESS:		NATI	ONAL POLLUTA	ANT DISCH	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM		(NPDES)	MAJOR		-	FORM APPROVED
TN EASTMAN DIVISION		•	DISCHARG	E MONITO	DISCHARGE MONITORING REPORT (DMR)	(DMR)		(SUBR 06)	ê	-	OMB No.2040-0004
DIVISION OF EASTMAN CH	CHEMICAL CO.	_	TN0002640			002 Q		F-FINAL	<u>ب</u> ـ		
P.O BOX 1993		•	PERMIT N	NUMBER		DISCHARGE	SE NUMBER	PROCE	SSED V	PROCESSED WW QUARTERLY REPORT	EPORT
KINGSPORT, TN 37662-5393	5393							EFFLUENT	۲		
Facility: TN EASTMAN - KINGSPOR	GSPORT		<u>-</u>		MON	MONITORING PE	PERIOD	ON ::	*** NO DISCHARGE	ARGE [***	
Location: SULLIVAN COUNTY	Y TN 37662-5393	5393		FROM	98 - 10 - 01	T0	98 - 12 - 31	NOTE: F	ead ins	NOTE: Read instructions before completing this form.	pleting this form.
PARAMETER (32-37)		(3 Card Only) (46-53)	Quantity or (54-61)	Loading	(4 Card Only) (38-45)	Quality or (46-53)	Concentration (54-61)		Š X	Frequency of	Sample
		Average	Maximum	Unit	Minimum	Average	Maximum	Chiit	(62-63)	(64-68)	(02-69)
CARBON TETRACHLORIDE	SAMPLE MEASUREMEN	********	<0.18	(26)	******	*****	<0.001	(19)		1/Quater	Grab
32102 2 0 0 EFFLUENT NET VALUE	S. PERMIT REGIMEENENS	Apply view	8.30 DAILY J	LBS/DAY	- initalist	0.018 MÖN AVG	0.038 DAILY MAX	MG/L	1.5	QUARTERLY	GRAB
1,2-DICHLOROETHANE	SAMPLE MEASUREMEN		<0.18	(26)	*******	******	<0.001	(19)	0	1/Quarter	Grab
32103 2 0 0 EFFLUENT NET VALUE	TEGORENENT TEGOREN	DAY NOT	46.17 DAILY DO	LBS/DAY	***************************************	MON AVG	DATEY MAX	MG/L		QUARTERLY	GRAB
CHLOROFORM	SAMPLE MEASUREMEN	******	<0.18	(26)	*******	********	<0.001	(19)	0	1/Quarter	Grab
32106 2 0 0 EFFLUENT NET VALUE	ANEW STATE OF STATE		DAINY	LBS/DAY		MON AVG	DAIBY MAX	MG/L		QUARTERLY	GRAB
TOLUENE	SAMPLE MEASUREMEN	•	<0.18	(26)	***	******	<0.001	(19)		1/Quarter	Grab
34010 2 0 0 EFFLUENT NET VALUE	NE OUR EMENT	The Ave	DAILY MAY LBS/DAY	LBS/DAY		0.026 Mon Avg	0.080 DAILY MAX	MG/L	7. 7. y 21. s	QUARTERLY	GRAB
ACENAPHTHYLENE	SAMPLE MEASUREMEN		<0.18	(26)	*********	*******	<0.001	(19)	-	1/Quarter	Grab
34200 2 0 0 EFFLUENT NET VALUE	NEW STATES		DAIN NE	LBS/DAY		SAY NGIN.	DAIL? NAX	MG/L	· 企作	CONFITERLY	GRAB
ACENAPHTHENE	SAMPLE MEASUREMEN	************	<0.18	(26)	*******	*********	<0.001	(19)	0	1/Quarter	Grab
34205 2 0 0 EFFLUENT NET VALUE	SESTIMENT.	(0).	DANIES IN SELL	LBS/DAY		MON AVG	DATEY MAX	MG/L	tra	QUARTERLY	GRAB
ACRYLONITRILE	SAMPLE MEASUREMEN		<0.18	(36)	*******	*******	<0.001	(19)	0	1/Quarter	Grab
34215 2 0 0 EFFLUENT NET VALUE		1.2	ALON A'GA BANEN MAN LBS/DAY	LBS/DAY	A TOP TO STATE OF THE STATE OF	SAY NOTE	DXILP MAX	MG/L		QUARTERLY	GRAB
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT I HAV'E PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQURY OF	ALTY OF LAW THAT I HA	NVE PERSONALLY HEREIN AND BAS	EXAMPLED AND AM ED ON MY INQUIRY OF	\				TELEPHONE	DATE
H. H. Holliman, President		THOSE PROTYDOUALS DANGDOLYTHY RESPO- BELIEVE THE SUBMITTED INFORMATION AWARE THAT THERE ARE SCHIFFCAN INFORMATION INCLUDING THE POSSIBILI	THOSE DUDYDULAS DAMEDIATELY RESPONSIBLE POR OFFLARING THE INFORMATION IS BELEVE THE SUBMITTED INFORMATION IS THUR, ACCURATE AND COMPLETE. I AM AN AVE THAT THERE ARE SOMPRICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF PINE AND IMPRISONMENT SEE IS USC	NSIBLE POR OBTAINING THE INFORMAT IS TRUE, ACCURATE AND COMPLETE. I NT PENALTIES FOR SUBMITTING FALSE IY OF PINE AND IMPRISONMENT SEE 18	NSBLE POR OPTAINING THE INFORMATION I B. TRUE, ACCURATE AND COMPLETE I AM I'M PENALTES FOR SUBMITTING FALSE I'V OF PINE AND INPRISONMENT SEE II USC	Mole	Syphen	N	$\overline{}$		
Tennessee Eastman Division	ion	3001 AND 33 USC, 1319. (\$10,000 AND OR MAXE	1001 AND 33 USC, 1319, (PENALTES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONAEDYT OF BETWEEN 6 MONTHS AND 5 YEARS.)	KE STATUTES MAY P BETWEEN 6 MON	TACLUDE FINES UP TO THIS AND 5 YEARS.)	SIGNATU	SIGNATURE OF PRINCIPAL EXECUTIVE	ХЕСИТІМЕ	<u> </u>	(423) 229-2000	99 - 01 - 13
TYPED OR PRINTED	,					OFFICE	OFFICER OR AUTHORÍZED AGENT	AGENT	₹	AREA CODE NUMBER	YEAR MO DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS

(Reference all attachments here)

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

EPA FORM 3320-1 (REV. 9-88) Previous editions may be used.

(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

PAGE 1 OF 8

FORM APPROVED OMB No.2040-0004 NOTE: Read instructions before completing this form. Sample GRAB GRAB (02-69)Grab Grab PROCESSED WW QUARTERLY REPORT Frequency of QUARTERLY QUĂRTERLY *** NO DISCHARGE QUARTERLY QUARTERLY **QUARTERLY COUNTRACT**RLY 1/Quarter 1/Quarter 1/Quarter 1/Quarter 1/Quarter 1/Quarter 1/Quarter (64-68) (62-63)2 2 2 M 0 0 0 (SUBR 06) EFFLUENT 0 0 0 F - FINAL MAJOR Sizi C MG/L MG/L MG/L MG/L AG AG Š (19) (19) (19) (19 (19) 9 (1 Concentration DAILY MAX DAILY MAX 98 - 12 - 31 DISCHARGE NUMBER DAILY MAX DAILY MAX DAILY NAX **\$0.00 6.001** <0.00 (24-61) Maximum 6.00 100 **6**.00 <0.00 0.016 **6**0.00 0.028 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MONITORING PERIOD MONE AVO D.DOOR2 MON AVG NON NO ö Average HON AVG \$ \$ \$ € 0.00082 0.015 (46-53) ******* . 900.0 ******* 9 **** ******** Quality DISCHARGE MONITORING REPORT (DMR) 98 - 10 - 01 (4 Card Only) Minimum Section. 1 -***** ***** ***** ******* ***** DAILY ILES/DAY DAIL LES DAY LBS/DAY LBS/DAY Loading **LBS/DAY** LBS/DAY PERMIT NUMBER FROM Ë (56) (29) 90 (20) 26) 38 TN0002640 DAIDA Quantity or Maximum <0.18 **60.18 %**0.18 **%**.18 **6**.18 6.18 **0.18** (3 Card Only) Average ******* -******* (46-53)ocation: SULLIVAN COUNTY TN 37662-5393 E Table CECANT CENTER ANEWNIE STATE DIVISION OF EASTMAN CHEMICAL CO. MEASUREMEN MEASUREMEN MEASUREMEN TE CARRESTON MEASUREMEN MEASUREMEN MEASUREMEN MEASUREMEN SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE eacility: TN EASTMAN - KINGSPORT TN 37662-5393 TN EASTMAN DIVISION PERMITTEE NAME/ADDRESS: BENZO (K) FLUORANTHENE **PARAMETER** EFFLUENT NET VALUE EFFLUENT NET VALUE EFFLUENT NET VALUE BENZENE, DISSOLVED EFFLUENT NET VALUE **EFFLUENT NET VALUE** EFFLUENT NET VALUE DIETHYL PHTHALATE KINGSPORT, BENZO (A) PYRENE CHLOROBENZENE P.O BOX 1993 34235 2 0 0 34220 2 0 0 34242 2 0 0 34247 2 0 0 34301 2 0 0 34320 2 0 0 ANTHRACENE CHRYSENE

COMMENT AND EXPLANATION OF ANY VIOLATIONS TYPED OR PRINTED

Tennessee Eastman Division

(Reference all attachments here)

(00) AND 33 USC ,1319 (PENALTIES UNDER THESE STATITIES MAY INCLUDE FINES UP TO

\$10,000 AND OR MAXIMUM INERUSONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)

INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE (\$ USC BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE I AM

THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE IMPORMATION. |

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

EFFLUENT NET VALUE

H. H. Holliman, President

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(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

PAGE 2 OF 8

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YEAR MO

99 - 01 - 13

(423) 229-2000 AREA CODE NUMBER

SIGNATUBÉ OF PRINCIPAL EXÉCUTIVE

OFFICER OR AUTHORIZED AGENT

DATE

TELEPHONE

OUVERTERLY

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GRAB

PAGE 3 OF 8

NOTE: Read instructions before completing this form. PROCESSED WW QUARTERLY REPORT *** NO DISCHARGE EFFLUENT (SUBR 06) F - FINAL MAJOR 98 - 12 - 31 DISCHARGE NUMBER NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MONITORING PERIOD ဥ 902 DISCHARGE MONITORING REPORT (DMR) 98 - 10 - 01 FROM PERMIT NUMBER TN0002640 Location: SULLIVAN COUNTY TN 37662-5393 Facility: TN EASTMAN - KINGSPORT DIVISION OF EASTMAN CHEMICAL CO. P.O BOX 1993 TN 37662-5393 TN EASTMAN DIVISION PERMITTEE NAME/ADDRESS: KINGSPORT,

FORM APPROVED OMB No.2040-0004

																. ,		_	_
Sample Type	(02-69)	Grab	GRAB	Grab	GRAB	Grab	GRAB	Grab	GRAB	Grab	GRAB	Grab	GRAB	Grab	GRAB	DATE		99 - 01 - 13	YEAR MO DAY
Frequency of analysis	(64-68)	1/Quarter	QUARTERLY	1/Quarter	QUARTERLY	1/Quarter	QUARTERLY	1/Quarter	QUARTERLY	1/Quarter	QÚÁRTERLY	1/Quarter	QUARTERLY	1/Quarter	QUARTERLY	TELEPHONE		(423) 229-2000	AREA CODE NUMBER
S X	(62-63)	0		-		0		0		0		O		0					
	Cnit		MG/L	(19)	MG/L	(19)	MG/L	(6)	MG/L	(19)	MG/L	(19)	MG/L	(19)	¥G/L		,	ECUTIVE	AGENT
Concentration (54-61)	Maximum	<0.001	0.047 DAILY MAX	<0.001	0.068 DAILY MAX	<0.001	0.00162 DAILY:MAX	.) 20.00>	0.049 DAILY MAX) 800:0>	0.054 DAILY MAX	<0.001	0.190 DAILY MAX	<0.001	0.089 DAILY MAX		Lulenn	SIGNATURE OF PRINCIPAL EXECUTIVE	OFFICER OR AUTHORIZED AGENT
Quality or (46-53)	Average	*****	0.019 MON AVG	*********	0.025 MON AVG	*******	0.00082 MON AVG	*******	0.020 MON AVG	******	0.021 MON AVG	*******	0.086 MON AVG	********	0.040 MON AVG	\	A. C.) OFFIC
(4 Card Only) (38-45)	Minimum	*******	**********	********	********	******	***************************************	***************************************	**************	*****	***********	********	***************************************	*****	***************************************	Y EXAMINED AND AM	AMILIAR WITH THE INFORMATION SUBMITTED RECEIP AND EAGLE PARKETS OF THE STREET	INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC TOOL AND 31 USC, 1319, (PENALTIES UNDER THESE STATUTES AND INCLUDE FINES OF TO	ONTHS AND 3 1 EARLS,
Loading	Unit	(26)	LBS/DAY	(26)	X. LBS/DAY	(26)	LBS/DAY	(26)	I RS/DAY	(26)	LBS/DAY	(26)	LBS/DAY	(36))	AVE PERSONALI	HE FOR OBTAIN RUE, ACCURATE ENALTIES FOR SI	JE FINE AND IMPA SE STATUTES MA	F BETWEEN OF
Quantity or (54-61)	Maximum	<0.18	10.27 DAILY MAX. LBS/DAY	<0.18		<0.18	ď	<1.29	10.74 DAILY MAX LIBS/DAY	<1.47	Ā		41.62 DAILY MAX LBS/DAY	8 1 00	19.45	CENTEY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM	MILAR WITH THE INFORMATION SUBMITTOR ACCOUNTS TAKEN TO BASED. ONES PROYIDULES DAMEDITALY RESPONSIBLE FOR OFFLANDS THE INFORMATION BELEVE THE SUBMITTED INFORMATION IS TRUE ACCURATE AND COMPLETE I AM ARMADETAT THERE ARE SIGNIFICANT PENALITIES FOR SUBMITTING FALSE AWARE THAT THERE ARE SIGNIFICANT PENALITIES FOR SUBMITTING FALSE	INFORMATICN INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC 001 AND 33 USC , 1319 (PENALTIES UNDER THESE STATUTES AND INCLUDE FINES UP TO THE SEE THE SEE AND SECTION OF THE SEE STATUTES AND SECTION OF THE SEE STATUTES AND SECTION OF THE SEE SECTION OF THE SECTIO	\$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MUNTILS AND 3 TEAMS.)
(3 Card Only) (46-53)	9	********	4.15 MÓN: ÁVG		MON AVG	****	0.179 MON AVG		4.37.	***************************************	MON AVG	*******	MON AVG			_	FAMILIAR WITH THE IN THOSE INDIVIDUALS IN BELIEVE THE SUBMI AWARE THAT IT	INFORMATION INCLU	\$10,000 AND OR MAX
X		SAMPLE MEASUREMEN	PERMIT REQUIREMENT	SAMPLE	PERMIT REQUIREMENT	SAMPLE	PERMIT	SAMPLE	PERMIT PEO! IIREMENT	SAMPLE	PERMIT	SAMPLE	PERMIT REQUIREMENT	SAMPLE	PERMIT	KEGUINEMEN .	VE OFFICER		5
PARAMETER		DIMETHYL PHTHALATE	34341 2 0 0 EFFLUENT NET VALUE	FLUORANTHENE	34376 2 0 0 FEELINENT NET VALUE	FLUORENE	34381 2 0 0 FEELIENT NET VALUE	HEXACHLOROBUTADIENE	34391 2 0 0	HEXACHLOROETHANE	34396 2 0 0	METHYL CHLORIDE	34418 2 0 0	METHYLENE CHLORIDE	34423 2 0 0	EFFLUENT NET VALUE	H. H. Holliman, President	Total Divis	lennessee Eastman Division

(Reference all attachments here) COMMENT AND EXPLANATION OF ANY VIOLATIONS

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant

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(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

FORM APPROVED OMB No.2040-0004 NOTE: Read instructions before completing this form. GRAB GRAB Sample GRAB (02-69) GRAB PROCESSED WW QUARTERLY REPORT QUARTERLY **GUARTERLY** Frequency of QUARTERLY QUARTERLY QUARTERLY **GUARTERLY** *** NO DISCHARGE 1/Quarter 1/Quarter analysis 1/Quarter 1/Quarter 1/Quarter 1/Quarter 1/Quarter (89-49) (62-63)S M 0 0 0 0 0 0 0 SUBR 06) EFFLUENT F - FINAL MAJOR Sign MG/ MG/L MG/L MG/L MG/L MG/L (£) (19) (19) £ 3 6 3 <u>6</u> 98 - 12 - 31 Concentration DAILY MAX DAILY MAX DAILY MAX DAILY MAX DISCHARGE NUMBER DAILY MAX DAILY: MAX **60.00** 0:00/162 5,00182 **6**.00 **c**0.001 6.00 6.00 100 **60.001** 0.00 (54-61) Maximum 0.059 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MONITORING PERIOD 0.022 MONE AVG MON AVG U DOOR Z ō HOW AVG MON AVG MON-AVG Average 0.022 0.016 ******* ****** ****** (46-53) ******* 2 Quality DISCHARGE MONITORING REPORT (DMR) 98 - 10 - 01 (4 Card Only) Minimum ******* ******* ****** in history -******* ****** -****** ******* LBS/DAY LBS/DAY LBS/DAY 12.89 DAIBY-MADE LBS/DAY LBS/DAY LBS/DAY Loading PERMIT NUMBER FROM Cnit 93 (26) (56) 26) 8 (56) 9 DAILY MARK. DAILY MAX DAILY MAX DAILY BOXX DAILY MAX TN0002640 Quantity or Maximum <0.18 **60.18 6**0.18 **60.18 60.18** <0.18 **60.18** 0.354 12.24 (24-61)HON AVG (3 Card Only) MON AVG MON AVG MON: AVG Average ***** ******* ******* ****** 8 ocation: SULLIVAN COUNTY TN 37662-5393 PERMIT REGUIREMENT REQUIREMENT REQUIREMENT DIVISION OF EASTMAN CHEMICAL CO. RECOUREMENT MEASUREMEN MEASUREMEN MEASUREMEN REGUIREMENT MEASUREMEN MEASUREMEN MEASUREMEN REQUIREMENT MEASUREMEN SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE PERMIT PERMIT PERMIT PERMIT Facility: TN EASTMAN - KINGSPORT KINGSPORT, TN 37662-5393 EASTMAN DIVISION PERMITTEE NAME/ADDRESS 1,1,1 - TRICHLOROETHANE 1,1 - DICHLOROETHYLENE ETRACHLOROETHYLENE **PARAMETER EFFLUENT NET VALUE** EFFLUENT NET VALUE EFFLUENT NET VALUE 1,1 - DICHLOROETHANE EFFLUENT NET VALUE **EFFLUENT NET VALUE** EFFLUENT NET VALUE PHENANTHRENE P.O BOX 1993 NITROBENZENE 34496 2 0 0 34501 2 0 0 34447 2 0 0 0 34469 2 0 0 34475 2 0 0 34461 2 0 PYRENE

COMMENT AND EXPLANATION OF ANY VIOLATIONS

Tennessee Eastman Division

TYPED OR PRINTED

(Reference all attachments here)

1001 AND 33 USC, 1319, (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIDACIM IMPRISONMENT OF BETWEEN 6 MONTHS AND 3 YEARS.)

INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE IS USC BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM

AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE

FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF

CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM

LBS/DAY

DAILY MAX

MON AVG

REQUIREMENT

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

EFFLUENT NET VALUE

H. H. Holliman, President

PERMIT

455

11:80

THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION. I

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PAGE 4 OF 8

YEAR MO DAY

AREA CODE NUMBER (423) 229-2000

SIGNATURE OF PRINCIPAL EXECUTIVE

OFFICER OR AUTHORIZED AGENT

99 - 01 - 13

DATE

TELEPHONE

QUARTERLY

MG/L

DAILY MAX

MON AVG

0.021

0.054

GRAB

REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

PERMITTEE NAME/ADDRESS:		NAT	NATIONAL POLLUT	ANT DISCH	JTANT DISCHARGE ELIMINATION SYSTEM (NPDES)	TON SYSTEM	(NPDES)	MAJOR			FORM APPRÔVED
IN EASTMAN DIVISION		_	DISCHAR	MONITO	DISCHARGE MONITORING REPORT (DMR)	- }		(SUBR 06)	8		OMB No.2040-0004
DIVISION OF EASTMAN CHEMICAL	HEMICAL CO.		₹ 1			002 Q		F-FINAL	7		
P.O BOX 1993			PERMIT N	NUMBER		DISCHAR	DISCHARGE NUMBER	PROCE	SSED	PROCESSED WW QUARTERLY REPORT	REPORT
KINGSPORT, TN 37662-5393	5393					- 1		EFFLUENT	EN ⊢		
Facility: TN EASTMAN - KINGSPORT	GSPORT				_	l	- 1	9 !	DISC	*** NO DISCHARGE [***	
Location: SULLIVAN COUNTY	Y TN 37662-5393	-5393		FROM	98 - 10 - 01	2	98 - 12 - 31	NOTE: F	Read in	NOTE: Read instructions before completing this form.	npleting this form.
PARAMETER (32-37)	X	(3 Card Only) (45-53)	Quantity or (54-61)	Loading	(4 Card Onfy) (38-45)	Quality or (46-53)	Concentration (54-61)		Š Ņ	Frequency of analysis	Sample Type
	7	Average	Maximum	Unit	Minimum	Average	Maximum	Unit	(62-63)	(64-68)	(02-69)
1,1,2 - TRICHLOROETHANE	SAMPLE MEASUREMEN	*******	<0.18	(26)	***********		<0.001	(19)	0	1/Quarter	Grab
34511 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	MON AVG	OAIRY WAX	LBS/DAY	annualità.	C.021 MON AVG	0.054 DAILY MAX	MG/L		QUARTÉRLY	GRAB
BENZO (A) ANTHRACENE	SAMPLE MEASUREMEN	********	<0.18	(26)	**********	***************************************	<0.001	(19)	0	1/Quarter	Grab
34526 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIRENENT	TON AVG	DAIL VIAX	LBS/DAY	***************************************	0.008 MON-AVG	0.016 DAILY MAX	MG/L		QUARTERLY	GRAB
1,2 - DICHLOROBENZENE	SAMPLE MEASUREMEN	**********	<0.18	(26)	******	********	<0.001	(19)	0	1/Quarter	Grab
34536 2 0 0 EFFLUENT NET VALUE	PERMIT.	TESS MON AVG	35.62 DAILY MAX	LBS/DAY	2.6	0.077 MON AVG	0.163 DAILY MAX	MG/L	,	QUARTERLY	GRAB
1,2 - DICHLOROPROPANE	SAMPLE MEASUREMEN	******	<0.18	(26)		*******	<0.001	(19)	0	1/Quarter	Grab
34541 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	DAY NOM:	DAILY MAX	LBS/DAY	******	0:163	0.230 DAILY MAX	MG/L		QUARTERLY	GRAB
1,2 · TRANS · DICHLOROETHYLENE	SAMPLE MEASUREMEN	*******	<0.18	(26)	*******	*******	<0.001	(19)	0	1/Quarter	Grab
34546 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	ATOM AVG	DÁILE BO	LBS/DAY	ar and a second	MON AVG	0.054 DAILY MAX	MG/L		QUARTERLY	GRAB
1,2,4 - TRICHLOROBENZENE	SAMPLE MEASUREMEN	*******	<0.18	(26)	******	*******	<0.001	(19)	0	1/Quarter	Grab
34551 2 0 0 EFFLUENT NET VALUE	PERUTE KE	PAY NOW	XYII. A IVO	LBS/DAY		MON AVG	0.140 DAILY MAX	MG/L		QUARTERLY	GRAB
1,3 - DICHLOROPROPYLENE, TOTAL WEIGHT	SAMPLE MEASUREMEN	*******	<0.36	(26)	******	*******	<0.002	(19)	0	1/Quarter	Grab
34561 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	6.34 NON AVG	6.34 9.61 WOLK AVG DAILY WAY LBS/DAY	LBS/DAY	***********	0.029 MON-ÁVG	0.044 DAILY MAX	MG/L		QUARTERLY	GRAB
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	VE OFFICER	I CERTIEY UNDER PER FAMILIAR WITH THE IM	I CERTEY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQURY OF	AVE PERSONALLY HEREIN AND BAS	FEXAMINED AND AM SED ON MY INQUIRY OF					TELEPHONE	DATE
H. H. Holliman, President		THOSE INDIVIDUALS IM BELLEVE THE SUBMIT AWARE THAT THE INFORMATION INCLUI	THOSE INDIVIDUALS INMEDIATELY RESPONSIBLE POR GOTALMING THE INFORMATION I BELEVE THE SUBMITTED INFORMATION IS TRUE, ACCUMATE AND COMPLETE! I AM AWALE THAT THERE ARE SIGNIFICANT PRIALITIES POR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBLITY OF FINE AND IMPRISONMENT SEE IS USC	LE POR OBTALNIN RUE, ACCURATE A ENALTIES POR SU P FINE AND IMPRU	NG THE INFORMATION. I UND COMPLETE. I AM BMITTING FALSE SONMENT SEE 18 USC	M	aylleun	1			
Tennessee Eastman Division	on	, 1001 AND 33 USC , 1319 (\$10,000 AND OR MAX	1001 AND 33 USC, 1319 (PENALTES UNDER THESE STATUTES MAY INCLUDE FIRES UP TO \$10,000 AND OR MAXIMUM IMPRISONAMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)	SE STATUTES MAI F BETWEEN 6 MOI	Y INCLUDE FINES UP TO NTHS AND 3 YEARS.)	SIGNATU	SIGNATURE OF PRINCIPAL EXECUTIVE	RECUTIVE	1	(423) 229-2000	99 - 01 - 13
TYPED OR PRINTED						OFFICE	OFFICER OR AUTHORIZED AGENT	AGENT	-	AREA CODE NUMBER	YEAR MO DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS

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(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.) EPA FORM 3320-1 (REV. 9-88) Previous editions may be used.

PAGE 5 OF 8

FORM APPROVED OMB No.2040-0004 NOTE: Read instructions before completing this form. 99 - 01 - 13 GRAB Grab GRAB GRAB GRAB DATE Type (69-70)Grab Grab GRAB GRAB GRAB Grab Grab Grab Grab PROCESSED WW QUARTERLY REPORT (423) 229-2000 TELEPHONE Frequency of **DUARTIERLY** QUARTERLY QUARTERLY QUARTERLY "" NO DISCHARGE [__ | "" QUARTERLY QUARTERLY QUARTERLY 1/Quarter 1/Quarter analysis 1/Quarter 1/Quarter 1/Quarter (84-68)1/Quarter 1/Quarter (62-63) δ̈́ o 0 (SUBR 06) 0 0 0 0 EFFLUENT 0 F - FINAL MAJOR SIGNATURIFOR PRINCIPAL EXPCUTIVE Chit N N MG/ MG/L MG/2 MG/L MG/L MG/L (19) (3 6 <u>6</u> 39 139 (19 98 - 12 - 31 Concentration DISCHARGE NUMBER DAILY MAX **c**0.001 6.00 100 **6**.00 6.00 **0.00** (54-61) Maximum 0.112 <0.00 **6**.00 0.028 0.285 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MONITORING PERIOD ٥ Average MON AVG MON AVG MON AVG MON AVG MON. AVG MON AVG MON AVG 0.016 (46-53) 0,031 ******* 0.018 9 **** ******* 0.041 ******* 0.113 Quality DISCHARGE MONITORING REPORT (DMR) 98 - 10 - 01 FAMILIAN WITH THE INFORMATION SUBMITTED HENEIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OFFAMING THE INFORMATION | INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE IS USC 1001 AND 33 USC, 1319. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO (4 Card Only) Minimum BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE I AM \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 3 YEARS) ****** ******* Philosophia ******* ******* ***** ---****** -****** ****** ***** AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE **LBS/DAY** LBS/DAY LBS/DAY LBS/DAY Loading LBS/DAY LBS/DAY LBS/DAY PERMIT NUMBER FROM <u>L</u> (26) (58) (58) (28) (28) (26)(26)DATEY MAX DAILY MAX DAILY MAX TN0002640 DAILY MAX DAILY MAX DAILY MAX 5 Maximum <0.18 <0.18 **6**0.18 6 18 **%**0.18 <0.18 <0.18 21.41 Quantity (54-61) 77.72 62.27 (3 Card Only) HON AVG MON AVG MON AVG MON AVG MÔN AVG MON AVG Average (46-53) ****** ******* -----******* ******* ******* 24.69 8.96 8.52 3.93 6.77 TN 37662-5393 DIVISION OF EASTMAN CHEMICAL CO. REQUIREMENT MEASUREMEN REQUIRÉMENT REQUIREMENT REQUIREMENT REQUIREMENT MEASUREMEN MEASUREMEN REQUIREMENT REQUIREMENT MEASUREMEN MEASUREMEN MEASUREMEN MEASUREMEN SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE PERMIT PERMIT PERMIT PERMIT PERMIT PERMIT NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Facility: TN EASTMAN - KINGSPORT TN 37662-5393 Tennessee Eastman Division ocation: SULLIVAN COUNTY H. H. Holliman, President TN EASTMAN DIVISION PERMITTEE NAME/ADDRESS: 1,3 - DICHLOROBENZENE 1,4 - DICHLOROBENZENE **PARAMETER** EFFLUENT NET VALUE **EFFLUENT NET VALUE** EFFLUENT NET VALUE 2,4 - DICHLOROPHENOL 2,4 - DIMETHYLPHENOI 2,4 - DINITROTOLUENE 2 - CHLOROPHENOL 2 - NITROPHENOL P.O BOX 1993 KINGSPORT, 34601 2 0 0 34571 2 0 0 34586 2 0 0 34591 2 0 0 34606 2 0 0 34611 2 0 0 34566 2 0 0

COMMENT AND EXPLANATION OF ANY VIOLATIONS

TYPED OR PRINTED

(Reference all attachments here)

in addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

EPA FORM 3320-1 (REV. 9-88) Previous editions may be used.

YEAR MO DAY

AREA CODE NUMBER

OFFICER OR AUTHORIZED AGENT

PAGE 7 OF 8

FORM APPROVED OMB No.2040-0004 NOTE: Read instructions before completing this form. PROCESSED WW QUARTERLY REPORT *** NO DISCHARGE EFFLUENT (SUBR 06) F - FINAL MAJOR 98 - 12 - 31 DISCHARGE NUMBER NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MONITORING PERIOD 5 002 DISCHARGE MONITORING REPORT (DMR) 98 - 10 - 01 FROM PERMIT NUMBER TN0002640 Location: SULLIVAN COUNTY TN 37662-5393 DIVISION OF EASTMAN CHEMICAL CO. Facility: TN EASTMAN - KINGSPORT TN 37662-5393 IN EASTMAN DIVISION PERMITTEE NAME/ADDRESS: P.O BOX 1993 KINGSPORT,

YEAR MO DAY 99 - 01 - 13 GRAB DATE GRAB Sample GRAB GRAB GRAB GRAB GRAB Type (02-69) Grab Grab Grab Grab Grab Grab Grab AREA CODE NUMBER (423) 229-2000 TELEPHONE QUARVERLY QUARTERLY DUARTERLY QUARTERLY QUARTERLY QUARTERLY CARPERLY Frequency of 1/Quarter 1/Quarter 1/Quarter 1/Quarter 1/Quarter 1/Quarter 1/Quarter analysis (64-68)(62-63) S Z 0 0 0 0 0 0 0 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT MG/L Ž MGP i S Z Z Z ÄGF MG/L MGA (19) <u>6</u> (19) 13 6 3 3 DAILY MAX Concentration DAILY MAX DAILY MAX DAILY MAX DAILY MAX DAILY MAX DAILY MAX <0.001 6.001 <0.00 **c**0.001 6.89 6.8 801:0 **0.00** 0.026 0,059 (54-61)Maximum 29,0 0.724 0.277 D.078 MON: AVG MON AVG OKEANG. ö Average MON AVG A NO (46-53) ******* ******* ******* 0.071 Quality 1001 AND 31 USC, 1319. (PENALTIES UNDER TRESS STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM INPRUSONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.) SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS INMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE IN USC (4 Card Only) Minimum AWARE THAT THERE ARE SIGNIFICANT PRIVALITIES FOR SUBMITTING FALSE -******* ***** ALTERNATION . ****** A A A A S. S. ******* stantan. ******* ****** ******* ****** DAIL TO LESIDAY LBS/DAY **LBS/DAY** LBS/DAY LBS/DAY LBS/DAY LBS/DAY Loading Ē (92) (98) 90 (50)(26) (58) DATES AND DAILY MAX X AND DAILTH PAX ö Maximum <0.18 <0.18 <0.18 <0.18 **0.18** <0.18 <1.47 26.88 Quantity I CERTIFY UNDER P. FAMILIAR WITH THE I HON AVG MON AVG MON AVG. HON AVG (3 Card Only) HON AVG MON AVG MON AVG Average ******** 17.04 ******* ******* 15.51 ****** ****** PERMIT REQUIREMENT REGUIRENER REQUIREMENT PERMIT REODINEMENT PERMIT RÉQUIREMENT SAMPLE MEASUREMEN MEASUREMEN MEASUREMEN RECUIREMENT MEASUREMEN MEASUREMEN RECOUREMENT MEASUREMEN MEASUREMEN SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE NAME/TITLE PRINCIPAL EXECUTIVE OFFICER PERMIT Tennessee Eastman Division TYPED OR PRINTED H. H. Holliman, President 4,6 - DINITRO - O - CRESOI EFFLUENT NET VALUE **PARAMETER** EFFLUENT NET VALUE EFFLUENT NET VALUE EFFLUENT NET VALUE EFFLUENT NET VALUE **EFFLUENT NET VALUE** EFFLUENT NET VALUE 2,6 - DINITROTOLUENE 2,4 DINITROPHENOL 4 · NITROPHENOL ETHYLBENZENE 37371 2 0 0 34694 2 0 0 NAPHTHALENE 34646 2 0 0 34696 2 0 0 34657 2 0 0 34626 2 0 0 34616 2 0 0 PHENOL

COMMENT AND EXPLANATION OF ANY VIOLATIONS

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(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

PERMITTEE NAME/ADDRESS:		NAT	ONAL POLLUTA	INT DISCH	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)	TON SYSTEM	(NPDES)	MAJOR			FORM APPROVED
IN EASTIMAN DIVISION			DISCHARG	E MONITO	DISCHARGE MONITORING REPORT (DMR)			(SUBR 06)	<u>@</u>		OMB No 2040-0004
DIVISION OF EASTMAN CHEMICAL CO.	HEMICAL CO.	<u></u>				002 Q		F-FINAL	بر		
P.O BOX 1993	5203		PERMIT NO	NUMBER		DISCHARC	DISCHARGE NUMBER	PROCE	SSED	PROCESSED WW QUARTERLY REPORT	REPORT
Facility IN FACTMAN, KINDAD	CSPORT				NOM	DO SINOMITODINO	DEDION	EFFLUENI			
Location: SULLIVAN COUNTY IN	Y TN 37662-5393	5393		FROM	98 - 10 - 01		98 - 17 - 31	N TI		NOTE: Read instructions before completing this form	pleting this form
	1				ш		4	j		אים כיוטוים מבוטוב כמוו	pictury and loan.
PARAMETER (32-37)	X	(3 Card Only) (46-53)	Quantity or (54-61)	Loading	(4 Card Only) (38-45)	Quality or (46-53)	Concentration (54-61)		§ ₩	Frequency of analysis	Sample Type
	7	Average	Maximum	Unit	Minimum	Average	Maximum	Unit	(62-63)	(64-68)	(02-69)
BIS (2 - ETHYLHEXYL) PHTHALATE	SAMPLE MEASUREMEN	*******	2.21	(26)	******	*******	0.012	(19)	0	1/Quarter	Grab
39100 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	22.51 MON AVG	60.96 DAILY MAX	LBS/DAY	******	0.103 MON AVG	0.279 DAILY MAX	¥G.		OUARTERLY	GRAR
DI . N . BUTYL PHTHALATE	SAMPLE MEASUREMEN	***	<0.37	(26)	****	•	<0.002	(19)	0	1/Quarter	Grab
39110 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	S.90 MÖN AVG	12.45 Daily max	LBS/DAY	gardina, and	0.027 MON AVG	0.057 DAILY MAX	MG/L		QUARTERLY	GRAB
VINYL CHLORIDE	SAMPLE MEASUREMEN	******	<0.18	(26)	有 化 化 用 电 电 电	******	<0.001	(19)	0	1/Quarter	Grab
39175 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	22.72 MON AVG	58.56 DAILY MAX	LBS/DAY	********	0.104 MON AVG	0.268 DAILY MAX	MG/L		QUARTERLY	GRAB
TRICHLOROETHYLENE	SAMPLE MEASUREMEN	*********	<0.18	(26)	*******	********	<0.001	(19)	0	1/Quarter	Grab
39180 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	4.59 MON AVG	11.80 DAILY MAX	LBS/DAY	*********	0.024 MON AVG	0.054 DAILY MAX	MG/L		QUARTERLY	GRAB
HEXACHLOROBENZENE	SAMPLE MEASUREMEN	********	<0.18	(26)	********	*******	<0.001	(19)	0	1/Quarter	Grab
39700 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	MON: AVG	DAILY NAX	LBS/DAY	75.00	0.000386 MOWAVG	0.000372 DAILY MAX	MG/L		QUARTERLY	GRAB
3,4 - BENZOFLUORANTHENE	SAMPLE MEASUREMEN	********	<0.18	(26)	*******	*******	<0.001	(19)	0	1/Quarter	Grab
79531 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	1.76 MON AVG	3.54 DAILY MAX	LBS/DAY	en egy	0.008 MON AVG	0.016 DAILY MAX	MG/L		QUARTERLY	GRAB
CHLOROETHANE	SAMPLE MEASUREMEN	********	<0.18	(26)	*******	******	<0.001	(61)	0	1/Quarter	Græb
85811 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	22.72 MON AVG	58.56 Daily Max	LBS/DAY	**************************************	0.104 MON AVG	0.268 DAILY MAX	MG/L		QUARTERLY	GRAB
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERȚIFY UNDER PËNALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FANILLAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF	I CERTTFY UNDER PFNALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM UMILAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY (IVE PERSONALLY HEREIN AND BAS	EXAMINED AND AM ED ON MY INQUIRY OF	\			1	TELEPHONE	DATE
H. H. Holliman, President		THOSE INDIVIDUALS IMMEDIATELY RESP BELIEVE THE SUBMITTED INFORMATIO AWARE THAT THERE ARE SIGNIFIC INFORMATION INCLUDING THE POSSIBIL	HOSE INDIVIDUALS DAMEDIATELY RESPONSIBLE FOR OFTAINING THE INFORMATION. BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM ANARETHAT THERE ARE SIGNIFICANT PENALTHES FOR SUBMITTING FALSE. INFORMATION INCLUDING THE POSSIBILITY OF FINE AND INFRISONMENT SEE 18 USC.	JE FOR OBTAINIM JE, ACCURATE A NALTIES FOR SUE FINE AND IMPRE	ONSTRIE FOR OUTAINING THE INFORMATION 1 NIS TRUE, ACCURATE AND COMPLETE. I AM ANY PENALTIES FOR SUBMITTING FALSE TITY OF FINE AND INPRESONMENT SEE 18 USC	M.	dylleun				
Tennessee Eastman Division	ion	,1001 AND 13 USC. 1319, (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 3 YEARS.)	OI AND 11 USC .1319, (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP " \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)	È STATUTES MAY BETWEEN 6 MON	INCLUDE FINES UP TO THIS AND 5 YEARS.)	SIGNATU	SIGNATURE OF PRINCIPAL EXECUTIVE	XECUTIVE		(423) 229-2000	99 - 01 - 13
TYPED OR PRINTED						OFFICE	OFFICER OR AUTHORIZED AGENT	AGENT	4	AREA CODE NUMBER	YEAR MO DAY

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